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This is a progress report on the development of a maternal behavior scale, one which would reflect both the actual behavior of a mother when confronted by her child's activities and also show the behaviors instigated by the mother in the child's presence. The ultimate goal of the research is to produce a human behavior scale which will record the behavior of the mother, father, other adults, peers, and siblings. In focusing on the competence of maternal behavior, the contributions of the child, the mother, and the environment in interaction were assessed. Observations were made in 30 homes of varied socioeconomic status with children in the 1- to 3-year-old age group. A data collection of about 65 hours of recorded behavior resulted. Units of maternal behavior were constructed from the observation protocols and, after several analyses and revisions, 31 categories of maternal behavior were labeled. Preliminary inter-scorer reliability was 80%. Some of the final behavior categories were (1) rewards with object or promise rewards, (2) praises, and (3) ignores. Comparisons were made to give profiles of maternal behavior. The Maternal Behavior Scale will be used to isolate behaviors for longitudinal studies. (DR)

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Primary Influences on the Development of Competence: The Development of a Maternal Behavior Scale

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Mrs. Litman has given you an overview of our attempts to isolate salient ecological variables in our study of competence. I would like to present one of these attempts in depth to give you a feeling for our approach to the problem, and of some of the difficulties and delights associated with the inductive approach.

Specifically, I am going to be speaking of the development of a maternal behavior scale. Our immediate goal in developing the scale was to devise an instrument that would truely reflect the actual behavior of a mother when confronted by the activities of her child, and one which would also record the behaviors instigated by the mother in the child's presence but not a direct reaction to the child's behavior. Our ultimate goal is to have a human behavior scale which will record not only the behavior of the mother, but of the father, other adults, as well as peers and siblings.

The scale will then be used in the larger project as an instrument to record the human surround particular to any one of our dependent variables. Initial indications are that the scale as it now stands will be generalizable intact to paternal and adult behavior, but will need some modification to cope with the activities of peers and siblings. We feel, however, that this extension is critical, because it is our impression that with second and later born children much of the human environment is comprised of sibs rather than mothers and fathers.

When one begins a venture such as the development of a maternal behavior scale, the first requirement is to turn to the literature and see what one's predecessors have done. Surprisingly, although mothers have been with us

for sometime now, the literature on the <u>scientific</u> study of maternal behavior is relatively recent - say within the past fifty years. The <u>Scientific</u> study of maternal behavior, in fact, seems to closely parallel the history of the thought that early childhood experiences are critical for later development. With the current flurry of renewed interest in this area, we are also seeing an increasing focus on the development of measuring instruments for human contact.

Before I present our work, I would like to give a brief overview of the approaches taken by others so our own scale can be seen in the context of previous work. I do not pretend to be exhaustive and have limited myself to more recent studies which attempt to understand maternal behavior.

There seem to be four basic paradigms for developing and using a maternal behavior instrument.

1. The first is to construct an interview schedule on the basis of theoretical notions about the importance of several maternal behaviors, then interview the mothers, record her recall of behavior in certain prototype situations, and then compute the results. So the sequence here is: apriori construction - interview - analyze. The Sears study of <u>Patterns of Child Rearing</u> (1957) is a prototype of this approach.

2. A second method is to, before observation, construct a rating scale of maternal behaviors, such as warmth, restrictiveness, and degree of involvement, observe behavior, then <u>rate</u> the behavior according to the apriori categories. This approach takes a higher degree of inference than approach #1. The sequence here is apriori construction - observe - rate - analyze. The Fels and Berkeley Growth Studies as well as the work of Baumrind (1968) fall into this category.

3. The third approach is to construct a measuring instrument, again from theoretical assumptions about the importance of a cluster of behaviors - observe (frequently) in a laboratory situation - score the behavior and analyze. So the sequence here is apriori construction - observation - scoring - analysis. Caldwell's APPROACH Scale (1968), Ainsworth's work with infants (1967), the work of Moustakis (1956) and that of Hess and Shipman (1968) fall generally into this category.

4. The fourth methodological paradigm is to first observe and record, then construct a scale and go back to what was observed and attempt to score it prior to analysis. The traditional mode here is to construct the scale again on apriori notions about the theoretical significance of behavior and then apply it to the data. The sequence here is observe - construct - analyze. The work of Barker and Wright (1959) and their coworkers are classic examples in this realm.

Our approach falls, with qualifications into category four. The qualifications are:

Although we had a general focus, it did reflect two working assumptions a) we were not purely inductive, in that we were focusing on competence, and our observations were guided to some extent by this: b) Our orientation favors an interactionist position, therefore we tried to look at the child, the mother and the enviroument in an attempt to acsess the contributions of all three.

There was one major and, we feel, important difference between us and position four. The construction of the units of behavior were not apriori but rose from the observations themselves. Therefore to a great extent, the

mothers told us what categories to include, not a theory. We also had the benefit of highly detailed running records where the new data was "preserved," permitting frequent evaluations of the measuring instrument as it evolved. One final point before I trace the development of the Maternal Behavior Scale. History would indicate that scales developed independent of a set of dependent variables seem to have a short life. For example, the painstaking work of Moustakis and his coworkers (done in 1956) in developing their human interaction scale has (to my knowledge) been used by no one else. Therefore, it would seem that behavior scales which attempt to quantify ecological variables, or independent variables, have a much longer life expectancy if developed jointly with the identification of the dependent variable.

Now, I would like to dramatize the rather laborious inductive process which characterized the development of our maternal behavior scale. I do this to present to those who may be unfamiliar with this scientific approach, the stop and go nature of research conducted in this manner, and the excitement which makes the stops bearable

We began in the Barker and Wright manner of taking 1 to 2 hour running records in 30 homes in the 1 to 3 age range. The homes represented a wide range of SES - although as Mrs. Litman mentioned, we did not have any real "impoverished" types of families such as those seen by Ira Gordon in rural Florida. Nor did we have a truly upper-upper class representation. (But, as a matter of fact, I have never seen a study on how to raise a Rothschild or a Rockefeller). The data collection resulted in about 65 hours of recorded behavior.

When the data was in, our group sat down and went through each protocol, sentence by sentence and attempted to give a common sense label to each bit of maternal behavior recorded. We arrived at 98 categories of maternal behavior— each highly descriptive of what was seen. For example, our labels included:

1. Provides material, toy, object (i.e. the mother hands something to the child).

2. Questions the child as to what he said (here the mother has not heard or has misunderstood a child's utterance and asks "What did you say?" or the like)

3. Cleans up after child (self-explanatory)

4. Ignores while on the phone (here the child does something while M is on the telephone and she does not acknowledge his behavior.)

Naturally, 98 categories are too unweildy for use in the field, so our next task was to reduce the number by clustering them under more general categorical labels. At first we attempted to cluster the behaviors under such titles as Reinforces, Care-taking behavior, teaching behavior, and the like. We abandoned this however, because it became apparent on rechecking the protocols that what was reinforcing in one home, was ego-crushing in another, so our attempts to be descriptive, when clustered this way, did mayhem to the actual intent of the behavior. To place a value judgement such as "reinforcing" on a bit of behavior, one must know the context in which it was emitted.

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As stated, the initial clustering proved unsatisfactory, so with computer assistance we did a preliminary correlational analysis to see what behaviors clustered. We also went back to the protocols and the 98 item list and tried to logically cluster behaviors under larger labels. It is particularly at this point that theory at some level unquestionably influenced our activities. and resulting product.

The preliminary clustering done, we found ourselves with 25 categories of maternal behavior. A new set of protocols were collected (about 15) and we began to score them according to our 25 item system. Further modifications were necessary as we attempted to make the categories mutually exclusive. At this point, also,,rules had to be devised so that the scorers could distinguish among behaviors that were very close to one another.

This done, and a preliminary manual was written and a new set of protocols (15) were attacked. This final revision led us to a 31 item scoring system with several subdivisions. We are now reasonably content that for our purposes we have captured most of the essence of maternal behavior. Preliminary inter-scorer reliability is 80%, and with further work we hope to raise it.

Some examples from our new and final instrument are:

1. Rewards with object or promises reward (often conditioned upon some behavior).

2. Threatens, scolds, mocks, makes derogatory comment, uses personal pejoratives (i.e., you jerk!), biting sarcasm.

3. Praise

4. Ignores

5. Uses child as a resource: "Where are my scissors."

6. Labeling: names an object, designates ownership, expands and elaborates.

Once interscorer and inter-observer reliability have been firmly established, it is our intent to mount a cross-sectional study of the behavior of mothers with one to three year old children. The one to three age range, at the moment is a psycholociaal mystery because so little work has been done with children at this age. The age range, however, is , infact, a rather critical transition point. No longer is the child of one year a passive, immobile infant, but he has not yet reached the immature, but reasonably rational level of the 4 to 5 year old. It is during this period that mothers have to make rather dramatic shifts in their behavior to cope with this pre-rational, highly mobile creature. For instance, it seems to us that our Zoo Keeper mother is hanging onto methods that may have been appropriate for the flat-on-the-back infant, but may be quite inappropriate for the child who can now discover the world on his feet. Also we have been struck by the high degree of similarity in competence between children up to about 14 to 16 months. At this point, as language begins to emerge, competent and incompetent children begin to be accurately identifiable. This is the period of the emergence of language. Maternal verbal behavior at this point may, in fact, be critical. We think it is. The Scale will hopefully enable us to ascertain what type of maternal verbal input nourishes the development of competence within the natural rather than laboratory setting.

We have some early returns on the nature of the behavior of "Almost" and "Super" mothers. There are some differences in their behavior.
Super mothers when compared to Almost mothers when interaciing with their

children are : 3 times more likely to label objects, twice as likely to ask about the child's internal state, and twice as likely to read him a story or sing him a song. Almost mothers, when compared to Super mothers are: 3 times as likely to scold their children, twice as likely to tell their children what to do, twice as likely to answer with a simple, unelaborated no. In situations where the mother is busy and the child either does something that would normally call for her attention (i.e. calling her name) Almost mothers are 3 times as likely to ignore these results.

The actual meaning of these behaviors will only be understood when they are viewed in the context of the project's dependent variables. Not only will the Maternal Behavior Scale give us profiles of maternal behavior (as outlined above), but it will enable us to isolate behaviors on which to focus in the longitudinal studies. For instance, what maternal behavior encourages the social ability of using the adult as a resource; Are physical environmental or human factors critical in the development of dual focus; or, are task patterns such as finding something to do, decreased or increased by specific maternal inputs such as suggestion or scolds? These and other questions can now be asked. Some of the answers will emerge in the total project's natural and longitudinal studies.

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